- - 28. (New) The mold of Claim 27 being symmetrical in at least one longitudinal cross-section.- -

- - 29. (New) The mold of Claim 28 wherein a symmetrical longitudinal cross-section is perpendicular to an asymmetrical longitudinal cross-section.- -

- - 30. (New) The mold of Claim 27 defining a cavity having a flattened portion.

- - 31. (New) The mold of Claim 27 defining a cavity having a canoe-shaped portion.

REMARKS

The amendments to the specification and claims are shown in Exhibit A submitted herewith.

Applicant notes the examiner's detailed review of the subject application. Applicant has amended the application as appropriate to improve clarity.

Claims 1-6 and 14-16 stand rejected as anticipated by U.S. Patent No. 4,891,555 to Ahlgren et al. ("Ahlgren"). Independent Claim 1, as amended, recites *inter alia* "a chamber cavity being asymmetrical in horizontal cross-section". Ahlgren teaches forming an arc tube utilizing a mold having a cavity for forming symmetrical bulbous chambers in the arc tube, e.g. spherical or elliptical chambers. (col. 8, lines 59-59). There is no disclosure or suggestion from Ahlgren of utilizing a mold having an asymmetrical horizontal cross-section for forming arc tubes. Reconsideration an withdrawal of the rejection of Claim 1 is solicited. Claims 2-6 and 14-16 depending from therefrom are allowable therewith without consideration of the other patentable limitations respectively recited therein.

Dependent Claims 7, 11-13 and 17 stand rejected as obvious over Ahlgren in combination with either U.S. Patent No. 5,539,273 to Sules et al. ("Sules") or U.S. Patent No.

5,525,863 to Kowalczyk et al. ("Kowalczyk"). The combination of Ahlgren with either Sulcs of Kowalczyk is improper as there is no motivation or suggestion from the references to combine the references as relied upon by the examiner. Further, the combination of references fails to disclose each of the limitations recited in the claims, e.g., none of the cited references disclose a mold defining an asymmetrical cavity for forming the bulbous chamber intermediate tubular end portions in an arc tube. Reconsideration and withdrawal of the rejections is solicited.

Ahlgren discloses a method for making a "formed body" arc tube. As illustrated in Figure 1 of Ahlgren, the "formed body" arc tube begins as a narrow quartz tube. A portion of the tube is then heated to soften it. Once softened, the tube wall in the heated area is thickened. After thickening, a mold is positioned about the heated, softened and thickened portion. Internal pressure is then applied to the tube causing the tube to expand in the location of the mold and conform to the shape of the cavity within the mold. The resultant formed body arc tube has a chamber with a diameter significantly greater than the diameter of the tubular end portions.

In contrast to the "formed body" arc tube of Ahlgren, Kowalczyk and Sulcs each disclose "pinched body" arc tubes. A "pinched body" arc tube is formed by pinch sealing the end portions of the tube to form a generally cylindrical chamber therebetween. The diameter of the cavity remains the same as the diameter of the quartz tube before pinch sealing the end portions. There is no motivation, teaching or suggestion in Kowalczyk or Sulcs regarding the use of a mold fro forming a bulbous arc tube chamber.

The Examiner asserts that "it would have been obvious for one of ordinary skill in the art to gather the quartz in the mold as taught by Ahlgren et al figures 1(f) – 1(g) to provide material for forming the lamp of Kowalczyk et al." (Office Action; page 3, paragraph 7). The examiner is incorrect. The methods of making arc tubes as described in Ahlgren are clearly distinct from

the methods disclosed in Kowalczyk and Sulcs and there is no motivation to combine the teachings thereof.

The examiner further asserts that it would have been obvious to make the mold cavity in Ahlgren asymmetrical in horizontal cross-section in view of Sulcs. The examiner appears to have mischaracterized what Sulcs fairly discloses. As stated above, Sulcs discloses forming a "pinched-body" arc tube having asymmetrical end portions formed by the pinch sealing process. There is no disclosure or suggestion in Sulcs of forming arc tubes using molds to form bulbous chambers of any shape, and particularly bulbous chambers being asymmetrical in cross-section. Thus even if the references are combined, neither reference discloses forming arc tubes utilizing a mold defining an asymmetrical cross-section. Reconsideration and withdrawal of the rejection is solicited.

Consideration and allowance of new Claims 18-31 is solicited. No new matter has been added.

A further and favorable Action and allowance of all claims is solicited.

Respectfully submitted,

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EXHIBIT A

In the Specification:

Please replace the second paragraph on Page 11 with the following paragraph:

- - A slight v-shape or large radius curve may also be provided along the bottom portion of the chamber from end to end. The object in all embodiments is to provide an essentially flat bottom to the chamber to thereby increase the surface area of the halide pool and thus the vapor pressure of the halides in the arc. This bottom may be curved or v-shaped both longitudinally and/or transversely of the arc tube. Formed body arc tubes provide great manufacturing flexibility and may,[,] e.g., be manufactured in the manner described in the Sulcs et al. copending patent application Serial No. 09/470,156 filed December 22, 1999 and entitled "Method of Making Optical Coupling Device" [(Case 2159)] assigned to the assignee of the present invention, the disclosure of which is hereby incorporated herein by reference. - -

In the Claims:

Please amend the following Claims:

1. (Amended) A method of making an arc tube chamber intermediate tubular end portions comprising the steps of:

(a) providing a tube of vitreous material and positioning the tube so that its axis is substantially horizontal;

(b) heating a portion of the tube sufficiently to soften it in a predetermined area;

(c) axially compressing the tube to force the softened material in the heated area radially inward and outward around the circumference of the tube to thereby thicken the tube wall in the heated area;

(d) repeating step (b) and step (c) in areas of the tube proximate to the previously thickened tube wall at least one additional time to thereby thicken the wall of the tube over an axial distance approximating the length of the desired chamber;

(e) heating the thickened wall area of the tube;

(f) positioning a mold having a chamber cavity of a desired shape over the heated thickened wall area, the chamber cavity being asymmetrical in horizontal cross-section;

(g) internally pressurizing the tube to expand the heated thickened area of the tube against the internal wall of the mold cavity to thereby form a chamber in the tube; and

(h) removing the mold from the chamber to thereby provide an arc tube chamber intermediate open tubular end portions.

8. (Amended) The method of Claim 1 wherein the mold cavity is positioned with a flattened [bottom] side up in step (f).

10. (Amended) The method of Claim 9 wherein the mold cavity is positioned with a flattened [bottom] side up in step (f).

13. (Amended) The method of Claim 12 wherein the bottom of the mold cavity in the longitudinal center thereof is flattened over a distance between about 50 and about 60 percent of the mold cavity.